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FILE 'HOME' ENTERED AT 14:59:36 ON 16 DEC 2002

=> file agricola biosis embase caplus
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

FILE 'AGRICOLA' ENTERED AT 14:59:48 ON 16 DEC 2002

FILE 'BIOSIS' ENTERED AT 14:59:48 ON 16 DEC 2002
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FILE 'CAPLUS' ENTERED AT 14:59:48 ON 16 DEC 2002
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=> s caryopsis(w)specific(w)promoter
L1            2 CARYOPSIS(W) SPECIFIC(W) PROMOTER

=> d l1 1-2 ibi ab
'IBI' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
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STD --------- BIB, IPC, and NCL

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
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HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its structure diagram, plus NTE and SEQ fields
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ENTER DISPLAY FORMAT (BIB):ibib

L1 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:31660 CAPLUS
DOCUMENT NUMBER: 136:80964
TITLE: **Caryopsis-specific promoter** of wheat for use in tissue-specific expression of foreign genes in cereal
INVENTOR(S): Sprunck, Stephanie; Kluth, Antje; Becker, Dirk; Luetticke, Stephanie; Loerz, Horst
PATENT ASSIGNEE(S): Aventis Cropscience Gmbh, Germany
SOURCE: PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002002786	A1	20020110	WO 2001-EP7593	20010703
W: AE, AG, AL, AM, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MA, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
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AU 2001089621	A5	20020114	AU 2001-89621	20010703

PRIORITY APPLN. INFO.: DE 2000-10032379 A 20000706
WO 2001-EP7593 W 20010703
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:31659 CAPLUS
DOCUMENT NUMBER: 136:80963
TITLE: A **caryopsis-specific promoter** of wheat for use in the

```
                        tissue-specific expression of foreign genes in cereal
INVENTOR(S):            Sprunck, Stefanie; Kluth, Antje; Becker, Dirk;
                        Luetticke, Stephanie; Loerz, Horst
PATENT ASSIGNEE(S):     Aventis Cropscience Gmbh, Germany
SOURCE:                 PCT Int. Appl., 57 pp.
                        CODEN: PIXXD2
DOCUMENT TYPE:          Patent
LANGUAGE:               German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
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     WO 2002002785      A1   20020110       WO 2001-EP7592   20010703
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             PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, YU, ZA, AM,
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     DE 10041861        A1   20020314       DE 2000-10041861 20000826
     AU 2001077523      A5   20020114       AU 2001-77523    20010703
PRIORITY APPLN. INFO.:                  DE 2000-10032379 A  20000706
                                        DE 2000-10041861 A  20000826
                                        WO 2001-EP7592   W  20010703
REFERENCE COUNT:          7     THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
                                RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT


=> FIL STNGUIDE
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                      ENTRY     SESSION
FULL ESTIMATED COST                                   10.20       10.41

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FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Dec 13, 2002 (20021213/UP).

=> file agricola biosis embase caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
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FILE 'AGRICOLA' ENTERED AT 15:04:37 ON 16 DEC 2002

FILE 'BIOSIS' ENTERED AT 15:04:37 ON 16 DEC 2002
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FILE 'CAPLUS' ENTERED AT 15:04:37 ON 16 DEC 2002
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=> s caryopsis(w)promoter
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L2            2 CARYOPSIS(W) PROMOTER

=> d l2 1-2

L2   ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2002 ACS
AN   2002:31660  CAPLUS
DN   136:80964
TI   Caryopsis-specific promoter of wheat for use in tissue-specific expression
     of foreign genes in cereal
IN   Sprunck, Stephanie; Kluth, Antje; Becker, Dirk; Luetticke, Stephanie;
     Loerz, Horst
PA   Aventis Cropscience Gmbh, Germany
SO   PCT Int. Appl., 64 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 2
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
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     AU 2001089621      A5    20020114       AU 2001-89621    20010703
PRAI DE 2000-10032379   A     20000706
     WO 2001-EP7593     W     20010703
RE.CNT  7      THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2   ANSWER 2 OF 2  CAPLUS  COPYRIGHT 2002 ACS
AN   2002:31659  CAPLUS
DN   136:80963
TI   A caryopsis-specific promoter of wheat for use in the tissue-specific
     expression of foreign genes in cereal
IN   Sprunck, Stefanie; Kluth, Antje; Becker, Dirk; Luetticke, Stephanie;
     Loerz, Horst
PA   Aventis Cropscience Gmbh, Germany
SO   PCT Int. Appl., 57 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 2
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
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PI   WO 2002002785      A1    20020110       WO 2001-EP7592   20010703
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             KP, KR, KZ, LC, LK, LR, LT, LV, MA, MD, MG, MK, MN, MX, NO, NZ,
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             BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
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     DE 10041861        A1    20020314       DE 2000-10041861 20000826
     AU 2001077523      A5    20020114       AU 2001-77523    20010703
PRAI DE 2000-10032379   A     20000706
     DE 2000-10041861   A     20000826
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     WO 2001-EP7592     W     20010703
RE.CNT  7      THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT


=> s caryopsis(w)spcific
L3            0 CARYOPSIS(W) SPCIFIC

=> s caryopsis(w)specific
L4            3 CARYOPSIS(W) SPECIFIC

=> d l4 1-3

L4   ANSWER 1 OF 3  CAPLUS  COPYRIGHT 2002 ACS
AN   2002:31660  CAPLUS
DN   136:80964
TI   Caryopsis-specific promoter of wheat for use in
     tissue-specific expression of foreign genes in cereal
IN   Sprunck, Stephanie; Kluth, Antje; Becker, Dirk; Luetticke, Stephanie;
     Loerz, Horst
PA   Aventis Cropscience Gmbh, Germany
SO   PCT Int. Appl., 64 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 2
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
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PI   WO 2002002786       A1   20020110       WO 2001-EP7593   20010703
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             KP, KR, KZ, LC, LK, LR, LT, LV, MA, MD, MG, MK, MN, MX, NO, NZ,
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             BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     DE 10032379         A1   20020117       DE 2000-10032379 20000706
     AU 2001089621       A5   20020114       AU 2001-89621    20010703
PRAI DE 2000-10032379    A    20000706
     WO 2001-EP7593      W    20010703
RE.CNT  7      THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4   ANSWER 2 OF 3  CAPLUS  COPYRIGHT 2002 ACS
AN   2002:31659  CAPLUS
DN   136:80963
TI   A caryopsis-specific promoter of wheat for use in the
     tissue-specific expression of foreign genes in cereal
IN   Sprunck, Stefanie; Kluth, Antje; Becker, Dirk; Luetticke, Stephanie;
     Loerz, Horst
PA   Aventis Cropscience Gmbh, Germany
SO   PCT Int. Appl., 57 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 2
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
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PI   WO 2002002785       A1   20020110       WO 2001-EP7592   20010703
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             KP, KR, KZ, LC, LK, LR, LT, LV, MA, MD, MG, MK, MN, MX, NO, NZ,
             PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, YU, ZA, AM,
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            AZ, BY, KG, KZ, MD, RU, TJ, TM
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            DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
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     DE 10041861       A1   20020314       DE 2000-10041861 20000826
     AU 2001077523     A5   20020114       AU 2001-77523    20010703
PRAI DE 2000-10032379  A    20000706
     DE 2000-10041861  A    20000826
     WO 2001-EP7592    W    20010703
RE.CNT  7     THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4   ANSWER 3 OF 3  CAPLUS  COPYRIGHT 2002 ACS
AN   1957:53959  CAPLUS
DN   51:53959
OREF 51:9993f-g
TI   The influence of interring straw and of nitrogen fertilization on the
     quality of caryopses of the succeeding wheat crop
AU   Cavazza, Luigi
CS   Univ. Bari, Italy
SO   Ann. sper. agrar. (Rome) (1957), 11, 25-34
DT   Journal
LA   English


=> s caryopsis and specific and promoter
L5            6 CARYOPSIS AND SPECIFIC AND PROMOTER

=> duplicate remove
ENTER L# LIST OR (END):l5
DUPLICATE PREFERENCE IS 'BIOSIS, CAPLUS'
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PROCESSING COMPLETED FOR L5
L6            5 DUPLICATE REMOVE L5 (1 DUPLICATE REMOVED)

=> d l6 1-5 ti

L6   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2002 ACS
TI   A starch-associated R1 protein of Solanum tuberosum and its use in
     altering starch properties of transgenic wheat and other plants

L6   ANSWER 2 OF 5  CAPLUS  COPYRIGHT 2002 ACS
TI   Caryopsis-specific promoter of wheat for use
     in tissue-specific expression of foreign genes in cereal

L6   ANSWER 3 OF 5  CAPLUS  COPYRIGHT 2002 ACS
TI   A caryopsis-specific promoter of wheat for
     use in the tissue-specific expression of foreign genes in cereal

L6   ANSWER 4 OF 5  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
TI   Functional characterization of seed coat-specific members of the
     barley germin gene family.

L6   ANSWER 5 OF 5  CAPLUS  COPYRIGHT 2002 ACS
TI   Gene expression using fusion with promoter of crop plant lipid
     transfer protein gene


=> d l6 1 4 5 ibib ab

L6   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         2002:332351  CAPLUS
DOCUMENT NUMBER:          136:322182
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TITLE: A starch-associated R1 protein of Solanum tuberosum and its use in altering starch properties of transgenic wheat and other plants
INVENTOR(S): Schewe, Gabi; Knies, Petra; Amati, Simone Franceska; Loerz, Horst; Becker, Dirk; Uwer, Ursula; Landschuetze, Volker; Pilling, Jens; Frohberg, Klaus
PATENT ASSIGNEE(S): Aventis Cropscience Gmbh, Germany
SOURCE: PCT Int. Appl., 81 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002034923	A2	20020502	WO 2001-EP12179	20011022
WO 2002034923	C1	20020711		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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DE 10052492	A1	20020425	DE 2000-10052492	20001023
DE 10064805	A1	20020627	DE 2000-10064805	20001222
AU 2002021716	A5	20020506	AU 2002-21716	20011022

PRIORITY APPLN. INFO.: DE 2000-10052492 A 20001023
DE 2000-10064805 A 20001222
WO 2001-EP12179 W 20011022

AB The present invention relates to monocotyledon plant cells and plants which are genetically modified to encode a starch-assocd. R1 protein. Plant cells and plants of this type synthesize a modified starch, which has an increased phosphate content and/or a modified phosphorylation pattern and/or an increased final viscosity in an RVA profile and/or a reduced peak temp. in differential scanning calorimetry anal. and/or an increased gel strength in the texture anal. compared with starch from corresponding non-genetically modified monocotyledon plants. More specifically, the transgenic plant cell synthesized a starch with a phosphate at the C6 position of a glucose monomer and has a phosphate content of at least 0.1 nmol phosphate/mg of starch. However, the amylose component of starch has a reduced total phosphate content. Furthermore, the modified starch has a 50% increase in viscosity and a peak temp. that is reduced by at least 1.5.degree.C. Therefore, the present invention also relates to the starch which is synthesized from the plant cells and plants according to the invention, and to methods of producing said starch. The present invention further relates to wheat flours which contain said modified starches, and to food products and bakery products which contain said wheat flours and/or starch.

L6 ANSWER 4 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
ACCESSION NUMBER: 2001:49506 BIOSIS
DOCUMENT NUMBER: PREV200100049506
TITLE: Functional characterization of seed coat-**specific** members of the barley germin gene family.
AUTHOR(S): Wu, Shiping; Druka, Arnis; Horvath, Henriette; Kleinhofs, Andris; Kannangara, C. Gamini; von Wettstein, Diter (1)
CORPORATE SOURCE: (1) Departments of Crop and Soil Sciences and Genetics and Cell Biology, Washington State University, Pullman, WA, 99164: diter@wsu.edu USA
SOURCE: Plant Physiology and Biochemistry (Paris), (September,

2000) Vol. 38, No. 9, pp. 685-698. print.
ISSN: 0981-9428.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The present project aimed to isolate testa-, pericarp- and epicarp-**specific** gene **promoters** for the developing **caryopsis** of barley (Hordeum vulgare L.). These might be applied in transgenic plants to express antifungal agents or modify metabolic pathways. A testa-**specific** 379-nucleotide fragment was cloned by differential amplification and used to screen a bacterial artificial chromosome (BAC) library of 6.3 haploid genome equivalents. Fifty-three clones containing genes encoding for proteins of the germin family were found. Characterization of the clones identified a minimum of six seed coat- and eight leaf-**specific** germin genes. Four seed coat- and one leaf-**specific** genes were sequenced. The deduced primary structure of the proteins revealed a remarkable conservation of the manganese(II) binding His and Glu residues and beta-barrel secondary structure of oxalate oxidase - also in barley, wheat, rice and Arabidopsis germins, for which an enzymatic activity has not yet been identified. The oxalate oxidase and germins of barley and other species are synthesized with a conserved pre-sequence of 23 or 24 amino acids for targeting into the cell wall. beta-Glucuronidase expression with the barley germin F gene **promoter** occurs specifically in the testa and epicarp of the developing barley **caryopsis**, while expression with the B gene **promoter** is restricted to the testa. Oxalate oxidase activity is prominent in the epicarp and the root tips of the developing embryo. A family tree based on primary structure homologies of germins distinguishes three groups: oxalate oxidases, leaf-**specific** germins and seed coat-**specific** germins.

L6 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:907813 CAPLUS
DOCUMENT NUMBER: 123:308197
TITLE: Gene expression using fusion with **promoter** of crop plant lipid transfer protein gene
INVENTOR(S): Olsen, Odd-Arne; Kalla, Roger; Linnestad, Casper
PATENT ASSIGNEE(S): Norway
SOURCE: PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9523230	A1	19950831	WO 1995-NO42	19950223
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RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
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AU 695526	B2	19980813		
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GB 2301364	B2	19980722		
EP 746623	A1	19961211	EP 1995-910817	19950223
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
US 6031152	A	20000229	US 1996-702609	19961120
PRIORITY APPLN. INFO.:			GB 1994-3512	19940224

WO 1995-NO42 19950223

AB An expression system for at least the aleurone cells of a developing **caryopsis** or for at least the scutellar epithelial tissue or vascular tissue of a germinating seedling or developing grain or plant (e.g. in the root, leaves and stem) is described. The expression system comprises a gene **promoter** fused to a GOI (gene of interest). In a preferred embodiment the expression system comprises the GOI fused to a modified Ltp 1 gene **promoter**.

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=> s endosperm and promoter and triticum
L8 54 ENDOSPERM AND PROMOTER AND TRITICUM

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L10 ANSWER 1 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
AN 2001:334770 BIOSIS
DN PREV200100334770
TI Matrix attachment regions.
AU Jordan, Mark Carlyle (1); Rampitsch, Christof; Cloutier, Marie Sylvie Jacqueline
CS (1) Winnipeg Canada
ASSIGNEE: Her Majesty the Queen in right of Canada, as represented by the Department of Agriculture and Agri-Food Canada, Lethbridge, Canada
PI US 6177612 January 23, 2001
SO Official Gazette of the United States Patent and Trademark Office Patents,

(Jan. 23, 2001) Vol. 1242, No. 4, pp. No Pagination. e-file.
ISSN: 0098-1133.
DT Patent
LA English

L10 ANSWER 2 OF 12 AGRICOLA DUPLICATE 2
AN 2001:56744 AGRICOLA
DN IND23214887
TI **Endosperm-specific** activity of a storage protein gene **promoter** in transgenic wheat seed.
AU Lamacchia, C.; Shewry, P.R.; Di Fonzo, N.; Forsyth, J.L.; Harris, N.; Lazzeri, P.A.; Napier, J.A.; Halford, N.G.; Barcelo, P.
AV DNAL (450 J8224)
SO Journal of experimental botany, Feb 2001. Vol. 52, No. 355. p. 243-250
Publisher: Oxford : Oxford University Press.
CODEN: JEBOA6; ISSN: 0022-0957
NTE Includes references
CY England; United Kingdom
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 3 OF 12 AGRICOLA
AN 2001:59163 AGRICOLA
DN IND23219753
TI Cloning and expression of a LMW-i glutenin gene.
AU Cloutier, S.; Rampitsch, C.; Penner, G.A.; Lukow, O.M.
AV DNAL (TX393.J6)
SO Journal of cereal science, Mar 2001. Vol. 33, No. 2. p. 143-154
Publisher: London ; New York : Academic Press, c1983-
CODEN: JCSCDA; ISSN: 0733-5210
NTE Includes references
CY England; United Kingdom
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 4 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:335059 BIOSIS
DN PREV200000335059
TI **Endosperm-specific** GFP expression driven by barley D-hordein **promoter** and its inheritance in transgenic barley and wheat plants.
AU Cho, M.-J. (1); Kim, H.-K. (1); Choi, H. W. (1); Buchanan, B. B. (1); Lemaux, P. G. (1)
CS (1) Department of Plant and Microbial Biology, University of California, Berkeley, CA, 94720 USA
SO In Vitro Cellular & Developmental Biology Animal, (March, 2000) Vol. 36, No. 3 Part 2, pp. 63.A. print.
Meeting Info.: Meeting of the Society for In Vitro Biology World Congress on In Vitro Biology San Diego, California, USA June 10-15, 2000
ISSN: 1071-2690.
DT Conference
LA English
SL English

L10 ANSWER 5 OF 12 AGRICOLA
AN 2000:60182 AGRICOLA
DN IND22058450
TI Overexpression of thioredoxin h leads to enhanced activity of starch debranching enzyme (pullulanase) in barley grain.
AU Cho, M.J.; Wong, J.H.; Marx, C.; Jiang, W.; Lemaux, P.G.; Buchanan, B.B.
AV DNAL (500 N21P)
SO Proceedings of the National Academy of Sciences of the United States of

America, Dec 7, 1999. Vol. 96, No. 25. p. 14641-14646
Publisher: Washington, D.C. : National Academy of Sciences,
CODEN: PNASA6; ISSN: 0027-8424
NTE Includes references
CY District of Columbia; United States
DT Article; Conference
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L10 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2002 ACS
AN 1999:485703 CAPLUS
DN 131:267754
TI Cloning and characterization of a gene encoding wheat starch synthase I
AU Li, Z.; Rahman, S.; Kosar-Hashemi, B.; Mouille, G.; Appels, R.; Morell, M. K.
CS CSIRO Plant Industry, Canberra, 2601, Australia
SO Theoretical and Applied Genetics (1999), 98(8), 1208-1216
CODEN: THAGA6; ISSN: 0040-5752
PB Springer-Verlag
DT Journal
LA English
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ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 7 OF 12 AGRICOLA
AN 1999:24581 AGRICOLA
DN IND21974797
TI An **endosperm-specific** DOF protein from barley, highly conserved in wheat, binds to and activates transcription from the prolamin-box of a native B-hordein **promoter** in barley **endosperm**.
AU Mena, M.; Vicente-Carbajosa, J.; Schmidt, R.J.; Carbonero, P.
CS ETS Ingenieros Agronomos, Madrid, Spain.
AV DNAL (QK710.P68)
SO The Plant journal : for cell and molecular biology, Oct 1998. Vol. 16, No. 1. p. 53-62
Publisher: Oxford : Blackwell Sciences Ltd.
ISSN: 0960-7412
NTE Includes references
CY England; United Kingdom
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 8 OF 12 AGRICOLA
AN 97:45195 AGRICOLA
DN IND20573288
TI The wheat transcriptional activator SPA: a seed-specific bZIP protein that recognizes the GCN4-like motif in the bifactorial **endosperm** box of prolamin genes.
AU Albani, D.; Hammond-Kosack, M.C.U.; Smith, C.; Conlan, S.; Colot, V.; Holdsworth, M.; Bevan, M.W.
CS John Innes Centre, Norwich, UK.
SO The Plant cell, Feb 1997. Vol. 9, No. 2. p. 171-184
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651
NTE Includes references
CY Maryland; United States
DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L10 ANSWER 9 OF 12 AGRICOLA

AN 96:30630 AGRICOLA
DN IND20513816
TI The maize transcription factor Opaque-2 activates a wheat glutenin **promoter** in plant and yeast cells.
AU Holdsworth, M.J.; Munoz-Blanco, J.; Hammond-Kosack, M.; Colot, V.; Schuch, W.; Bevan, M.W.
CS John Innes Centre, Norwich, UK.
AV DNAL (QK710.P62)
SO Plant molecular biology, Nov 1995. Vol. 29, No. 4. p. 711-720
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PMBIDB; ISSN: 0167-4412
NTE Includes references
CY Netherlands
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 10 OF 12 AGRICOLA
AN 93:41937 AGRICOLA
DN IND93023465
TI In vivo footprinting of a low molecular weight glutenin gene (LMWG-1D1) in wheat **endosperm**.
AU Hammond-Kosack, M.C.U.; Holdsworth, M.J.; Bevan, M.W.
CS John Innes Centre for Plant Sciences Research, Norwich, UK
AV DNAL (QH506.E46)
SO The EMBO journal - European Molecular Biology Organization, Feb 1993. Vol. 12, No. 2. p. 545-554
Publisher: Oxford, Eng. : IRL Press.
CODEN: EMJODG; ISSN: 0261-4189
NTE Includes references.
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 11 OF 12 AGRICOLA DUPLICATE 3
AN 91:53097 AGRICOLA
DN IND91028316
TI Structural and functional analysis of **promoter** from gliadin, an **endosperm-specific** storage protein gene of **Triticum** aestivum L.
AU Aryan, A.P.; An, G.; Okita, T.W.
CS Washington State University, Pullman, WA
AV DNAL (442.8 Z34)
SO M G G : Molecular and general genetics, Jan 1991. Vol. 225, No. 1. p. 65-71 ill
Publisher: Berlin, W. Ger. : Springer International.
CODEN: MGGEAE; ISSN: 0026-8925
NTE Includes references.
DT Article
FS Non-U.S. Imprint other than FAO
LA English

L10 ANSWER 12 OF 12 AGRICOLA
AN 92:32091 AGRICOLA
DN IND92012101
TI Identification of an enhancer element for the **endosperm-specific** expression of high molecular weight glutenin.
AU Thomas, M.S.; Flavell, R.B.
CS University of Nottingham Medical School, Nottingham, United Kingdom
AV DNAL (QK725.P532)
SO The Plant cell, Dec 1990. Vol. 2, No. 12. p. 1171-1180
Publisher: Rockville, Md. : American Society of Plant Physiologists.
ISSN: 1040-4651
NTE Includes references.

DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

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L10 ANSWER 1 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
AB Matrix attachment regions isolated from the 5' flanking region of **endosperm-specific** storage protein genes of monocotyledonous plants are provided. An exemplified matrix attachment region is derived from the 5' flanking region of the Bx7 gluten gene of **Triticum** aestivum. Recombinant nucleic acid molecules and plant vectors containing such recombinant nucleic acid molecules include DNA constructs having a **promoter**, a coding sequence, and a poly(A) addition site, the DNA constructs operably linked to at least one of the matrix attachment regions. Gene expression in transgenic plants, preferably monocotyledonous cereal crop species, is improved by transforming plants with such recombinant nucleic acid molecules.

L10 ANSWER 2 OF 12 AGRICOLA DUPLICATE 2
AB The characterization of the **promoter** of a wheat (**Triticum** aestivum) cv. Cheyenne high molecular weight glutenin subunit (HMW subunit) gene, Glu-1D-1 is reported. The nucleotide sequence of the **promoter** from position -1191 to -650 with respect to the transcription start site was determined, to add to that already determined. Analysis of this region of the **promoter** revealed the presence of an additional copy of part of the primary enhancer sequence and sequences related to regulatory elements present in other wheat seed protein genes. A chimaeric gene was constructed comprising the 5' flanking region of the Glu-1D-1 gene from position -1191 to +58, the coding region of the UidA (Gus) gene, and the nopaline synthase (Nos) gene terminator. This chimaeric gene was introduced into wheat (**Triticum** durum cv. Ofanto) by particle bombardment of inflorescence explants. Two independent transgenic lines were produced, and both showed expression of the Gus gene specifically in the **endosperm** during mid-development (first detected 10-12 d after anthesis). Histochemical analysis of homozygous T2 seed confirmed this pattern of expression, and showed that expression was initiated first in the central lobes of the starchy **endosperm**, and then spread throughout the **endosperm** tissue, while no expression was detected in the aleurone layer. Native HMW subunit protein was detectable by Western analysis 12-14 d after anthesis, consistent with concurrent onset of activity of the native and introduced HMW subunit gene **promoters**.

L10 ANSWER 3 OF 12 AGRICOLA
AB **Endosperm-specific** low-molecular-weight (LMW) glutenins are an important component of the polymeric gluten and, as such, play a key role in end-use functionality. Reports of N-terminal amino acid sequences of LMW glutenin fractions revealed that they have either a methionine or a serine residue at the first position of the mature peptide. These subunits were therefore called LMW-m and LMW-s type glutenins. A gene that is predicted to encode a LMW glutenin subunit having an isoleucine amino acid residue at position one of the mature protein was amplified and cloned from extra strong bread wheat cultivar Glenlea (pGH3.1). The predicted N-terminal sequence of this gene is truncated as compared to the m-type and s-type. The gene still codes for the expected number of eight cysteine residues which are all located in the C-terminal region. We propose to call it LMW-i based on the same nomenclature. Analysis of 277 doubled haploid lines derived from a single cross showed perfect co-segregation of the cloned PCR fragment with a rare LMW glutenin called LMW-50. The gene was subcloned in an expression vector and the protein was expressed in E. coli. Western blot analysis using a

prolamin-specific monoclonal antibody confirmed the co-migration of the cloned protein with LMW-50 from Glenlea.

L10 ANSWER 4 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

L10 ANSWER 5 OF 12 AGRICOLA
AB Biochemically active wheat thioredoxin h has been overexpressed in the **endosperm** of transgenic barley grain. Two DNA constructs containing the wheat thioredoxin h gene (wtrxh) were used for transformation; each contained wtrxh fused to an **endosperm-specific** B(1)-hordein **promoter** either with or without a signal peptide sequence for targeting to the protein body. Twenty-two stable, independently transformed regenerable lines were obtained by selecting with the herbicide bialaphos to test for the presence of the bar herbicide resistance gene on a cotransformed plasmid; all were positive for this gene. The presence of wtrxh was confirmed in 20 lines by PCR analysis, and the identity and level of expression of wheat thioredoxin h was assessed by immunoblots. Although levels varied among the different transgenic events, wheat thioredoxin h was consistently highly expressed (up to 30-fold) in the transgenic grain. Transgenic lines transformed with the B(1)-hordein **promoter** with a signal peptide sequence produced a higher level of wheat thioredoxin h on average than those without a signal sequence. The overexpression of thioredoxin h in the **endosperm** of germinated grain effected up to a 4-fold increase in the activity of the starch debranching enzyme, pullulanase (limit dextrinase), the enzyme that specifically cleaves alpha-1,6 linkages in starch. These results raise the question of how thioredoxin h enhances the activity of pullulanase because it was found that the inhibitor had become inactive before the enzyme showed appreciable activity.

L10 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2002 ACS
AB A cDNA clone, and a corresponding genomic DNA clone, contg. full-length sequences encoding wheat starch synthase I, were isolated from a cDNA library of hexaploid wheat (**Triticum** aestivum) and a genomic DNA library of **Triticum** tauschii, resp. The entire sequence of the starch synthase-I cDNA (wSSI-cDNA) is 2591 bp, and it encodes a polypeptide of 647 amino-acid residues that shows 81% and 61% identity to the amino-acid sequences of SSI-type starch synthases from rice and potato, resp. In addn., the putative N-terminal amino-acid sequence of the encoded protein is identical to that detd. for the N-terminal region of the 75-kDa starch synthase present in the starch granule of hexaploid wheat. Two prominent starch synthase activities were demonstrated to be present in the sol. fraction of wheat **endosperm** by activity staining of the non-denaturing PAGE gels. The most anodal band (wheat SSI) shows the highest staining intensity and results from the activity of a 75-kDa protein. The wheat SSI mRNA is expressed in the **endosperm** during the early to mid stages of wheat grain development but was not detected by Northern blotting in other tissues from the wheat plant. The gene encoding the wheat SSI (SsI-D1) consists of 15 exons and 14 introns, similar to the structure of the rice starch synthase-I gene. While the exons of wheat and rice are virtually identical in length, the wheat SsI-D1 gene has longer sequences in introns 1, 2, 4 and 10, and shorter sequences in introns 6, 11 and 14, than the corresponding rice gene.

L10 ANSWER 7 OF 12 AGRICOLA
AB A cDNA encoding a DNA-binding protein of the DOF class of transcription factors was isolated from a barley **endosperm** library. The deduced amino acid sequence for the corresponding protein is 94% identical through the DOF domain to the prolamin-box (P-box) binding factor PBF from maize. The gene encoding the barley PBF (BPBF) maps to chromosome 7H, and its expression is restricted to the **endosperm** where it precedes that of the hordein genes. The BPBF expressed in bacteria as a GST-fusion binds a P-box 5'-TGTAAAG-3' containing oligonucleotide derived from the

promoter region of an Hor2 gene. Binding was prevented when the P-box motif was mutated to 5-'TGTAgAc-3'. A P-box binding activity, present in barley and wheat **endosperm** nuclei, interacted similarly to BPBF with this synthetic oligonucleotide, and the binding was abolished by 1,10-phenanthroline. Transient expression experiments in developing barley **endosperms** demonstrate that BPBF transactivates transcription from the P-box element of a native Hor2 **promoter** and that direct binding of BPBF to its target site is essential for transactivation since mutations in the DOF DNA-binding domain or in the P-box motif of this **promoter** abolished both binding and transactivation. Evidence was also obtained for the presence in wheat of a Pbf homologue having similar DNA-binding properties to that of BPBF. These results strongly implicate this **endosperm-specific** DOF protein from barley as an important activator of hordein gene expression and suggest the evolutionary conservation of the Pbf gene function among small grain cereals.

L10 ANSWER 8 OF 12 AGRICOLA
AB The conserved bifactorial **endosperm** box found in the **promoter** of wheat storage protein genes comprises two different cis elements that are thought to be involved in regulating **endosperm-specific** gene expression. **Endosperm** nuclear extracts contain binding activities. One is called ESBF-I, which binds to the **endosperm** motif (EM), and the other is called ESBF-II, which binds to the GCN4-like motif (GLM). Here, we present a functional analysis of the **endosperm** box of a low-molecular-weight glutenin gene found on the 1D1 chromosome of hexaploid wheat (LMWG-1D1) in transgenic tobacco plants. Our analysis demonstrates the necessity of the EM and GLM for **endosperm-specific** gene expression and suggests the presence in tobacco of functional counterparts of wheat ESBF-I and ESBF-II. Furthermore, we describe the isolation and characterization of cDNA clones encoding SPA, a seed-specific basic leucine zipper protein from wheat that can activate transcription from the GLMs of the -326-bp LMWG-1D1 **promoter** in both maize and tobacco leaf protoplasts. This activation is also partially dependent on the presence of functional EMs, suggesting interactions between SPA with ESBF-I-like activities.

L10 ANSWER 9 OF 12 AGRICOLA
AB The **promoter** of the wheat low-molecular-weight glutenin (LMWG1D1) gene contains a cis element called the GCN4 like motif (GLM) which has low homology to one class of binding site for the maize **endosperm-specific** b-ZIP transcription factor Opaque-2 (O2). Previous work has shown that the GLM element interacts with the nuclear factor ESBFII during wheat **endosperm** development at the time of maximum transcription of the LMWG1D1 gene. In this paper we demonstrate that O2 binds to the GLM element and can activate high levels of transcription from the wheat GLM in transient assays in plant protoplasts and in yeast cells. Lower levels of O2 activation through the GLM element in yeast containing a defective GCN4 gene showed that GCN4 was necessary for high levels of O2 transcriptional activation, indicating that O2 may need to heterodimerise with GCN4 to activate transcription in yeast. These observations provide evidence that the GLM represents a new type of O2 DNA-binding site, and support a postulate that an O2 homologue may activate **endosperm-specific** expression of wheat storage protein genes.

L10 ANSWER 10 OF 12 AGRICOLA
AB The quality of the wheat grain is determined by the quantity and composition of storage proteins (prolamins) which are synthesized exclusively in **endosperm** tissue. We are investigating the mechanisms underlying the regulation of expression of a prolamin gene, the low molecular weight glutenin gene LMWG-1D1. The LMWG-1D1 **promoter** contains the **endosperm** box, a sequence motif highly conserved in

the **promoter** region of a large number of storage protein genes, which is thought to confer **endosperm-specific** expression of prolamin genes. Here we show by in vivo DMS footprinting of wheat **endosperm** tissue that the **endosperm** box becomes occupied by putative trans-acting factors during grain ripening. During early stages of development the **endosperm** motif within the 5' half of the **endosperm** box becomes occupied first, followed by binding of a second activity to a GCN4/jun-like motif in the 3' half just prior to the stage of maximum gene expression. Occupancy of the **endosperm** box is highly tissue-specific: no protection was observed in husk and leaf tissues. Several binding activities were identified in vitro from nuclear protein extracts of wheat **endosperm** which bind specifically to the **endosperm** and GCN4/jun motifs identified by in vivo footprinting.

L10 ANSWER 11 OF 12 AGRICOLA DUPLICATE 3

AB To identify cis-regulatory elements of the gliadin gene, a study of the gliadin gene **promoter** was conducted by transient expression analysis of plasmid DNAs which were introduced into plant protoplasts by electroporation. The **promoter** region (-592 bp to +18 bp from the translational start) of this developmentally regulated gene, when fused upstream to the chloramphenicol acetyl transferase (CAT) reporter cassette was unable to direct significant CAT expression in wheat or tobacco suspension cells. Because this monocot gene **promoter** appeared to be under stringent tissue-specific control, a hybrid **promoter** approach using a nopaline synthase (nos) **promoter** was employed. A series of 3' deletions of the gliadin **promoter** were placed upstream of either a nonfunctional -101 nos or a nearly wild-type -155 nos **promoter** fused in turn to a CAT reporter gene cassette. Transient expression analysis of these plasmid DNAs in tobacco cells showed that the gliadin fragment could either restore the activity of the non-functional nos **promoter** (series I) or enhance the activity of the functional nos **promoter** (series II). The degree of restoration of the **promoter** function conferred by gliadin fragments of the first series was proportional to the enhancing effect of the same fragments in the second series of constructs. The transcriptional activity of the gliadin (-592 bp to -77 bp) -nos hybrid **promoter** was reduced by 26% upon 3' deletion of sequences in the region -141 bp to -77 bp, which contains both the TATA and CCAAT boxes. A marked decline in the **promoter** function of these hybrid constructs, however, was observed when an additional upstream region was removed, suggesting the presence of regulatory sequences in the -218 bp to -141 bp region of the gliadin **promoter**. Deletion of the -300 bp element, which is similar to the SV40 core enhancer, did not affect hybrid **promoter** function, although additional upstream activating sequences (-592 bp to -448 bp) were also observed.

L10 ANSWER 12 OF 12 AGRICOLA

AB Genes encoding high molecular weight (HMW) glutenin, a wheat seed storage protein, are expressed only in the developing **endosperm**. It was previously demonstrated that sequences essential for **endosperm-specific** transcription reside within 436 base pairs upstream of the initiation codon for HMW glutenin translation. We have further analyzed this region by testing the ability of a series of truncated HMW glutenin **promoter** fragments to enhance transcription from an adjacent heterologous **promoter**. The activity of these hybrid **promoters** was determined by measuring the expression of a linked beta-glucuronidase (GUS) reporter gene in transgenic tobacco plants. An HMW glutenin **promoter** fragment spanning nucleotides -375 to -45 relative to the transcription start site was found to stimulate GUS expression in tobacco seeds when inserted in either orientation upstream of the heterologous **promoter**. Furthermore, this fragment could also potentiate transcription when located 3' to the GUS reporter gene. Stimulation of GUS gene expression in transgenic tobacco seeds did not

occur until 9 days to 12 days after anthesis, coincident with the onset of storage protein synthesis in the developing tobacco and wheat seed, and was confined to the **endosperm** tissue. By testing progressively shorter **promoter** fragments, the enhancer element responsible for this pattern of expression was localized to a 40-base pair region some 170 base pairs upstream of the start site for HMW glutenin transcription.

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L7	L6 and caryopsis adj specific	0	L7
L6	L5 and wheat	32	L6
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L3	200202785	2	L3
L2	CARYOPSIS ADJ SPECIFIC ADJ PROMOTER	2	L2
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L1	CARYOPSIS ADJ SPECIFIC ADJ PROMOMTER	0	L1

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